

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An editing apparatus, comprising:

first editing means for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

second editing means for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

data copying means for copying data common to the display content program and the control procedure program, from/to a display content program file to/from a control procedure program file, where the display content program file stores the display content ~~control procedure~~ program, and the control procedure program file stores the control procedure program,

wherein the data copying means copies data, which is common to one of the display content program and the control procedure program and a figure symbol generated by CAD (Computer-Aided Design), from a CAD database to one of the display content program file and the control procedure program file.

2. (Original) The editing apparatus as set forth in Claim 1, wherein the editing apparatus is connected, via network, to a different system, and the data copying means copies the data from/to both the files to/from the system.

3. (Cancelled)

4. (Cancelled)

5. (Original) The editing apparatus as set forth in Claim 1, wherein:

one of the first and second editing means, which corresponds to one of the files to which the data is copied, displays an image block relating to the data, by looking up the copied data.

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Original) The editing apparatus as set forth in Claim 1, wherein the data copying means copies data, which is common to the figure symbol and one of the display content program and the control procedure program, in accordance with operation of selecting the figure symbol displayed on a CAD (Computer-Aided Design) screen, and copying the figure symbol to one of editing screens off the first and second editing means.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Original) A computer-readable recording medium that stores an editing program, the editing program executing:

a first editing process for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

a second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a data copying process for copying data common to the display content program and the control procedure program, from/to a display content program file to/from a control procedure program file, where the display content program file stores the control procedure program, and the control procedure program file stores the control procedure program,

wherein the data copying process copies data, which is common to one of the display content program and the control procedure program and a figure symbol generated by CAD (Computer-Aided Design) / from a CAD database to one of the display content program file and the control procedure program file.

18. (Cancelled)

19. (Original) The recording medium as set forth in Claim 17, wherein:

one of the first and second editing processes, which corresponds to one of the files to

which the data is copied, displays an image block relating to the data, by looking up the copied data.

20. Cancelled)

21. (Original) The recording medium as set forth in Claim 19, wherein the data copying process copies data, which is common to a figure symbol and one of the display content program and the control procedure program, in accordance with operation of selecting the figure symbol displayed on a CAD (Computer-Aided Design) screen, and copying the figure symbol to one of editing screens of the first and second editing processes.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Original) A computer-readable recording medium that stores an editing program, the editing program executing:

one of a first editing process and a second editing process, the first editing process being for generating a display content program for setting a content of display for displaying states of control-object apparatuses, and the second editing process being for generating a control procedure program for setting a procedure of control for controlling the control-object

apparatuses; and

a data copying process for copying data common to the display content program and the control procedure program, from/to a display content program file to/from a control procedure program file, where the display content program file stores the control procedure program, and the control procedure program file stores the control procedure program,

wherein the data copying process copies data, which is common to one of the display content program and the control procedure program and a figure symbol generated by CAD (Computer-Aided Design), from a CAD database to one of the display content program and the control procedure program file.

28. (Cancelled)

29. (Original) The recording medium as set forth in Claim 27, wherein:

one of the first and second editing processes, which corresponds to one of the files to which the data is copied, displays an image block relating to the data, by looking up the copied data.

30. (Cancelled)

31. (Original) The recording medium as set forth in Claim 29, wherein the data copying process copies data, which is common to the figure symbol and one of the display content program and the control procedure program, in accordance with operation of selecting the figure symbol displayed on a CAD (Computer-Aided Design) screen, and copying the figure symbol to one of editing screens of the first and second editing means.

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Original) An editing apparatus, comprising:

first editing means for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

second editing means for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a single file for storing (I) screen data, which is inclusive of (a) inherent data inherent to the display content program, (b) variable names set with respect to the respective control-object apparatuses, (2) control data, which is inclusive of the variable names and inherent data inherent to the control procedure program, the common data including the variable names, and (3) common data, which is common to (a) the display content program, (b) the control procedure program, and which is inclusive of the variable names; and

data generating means for causing one of the first and second editing means to generate, in the file, inherent data, which is inherent to one of the display content program and the control procedure program, based on the variable name of the common data obtained by searching out of the file.

38. (Original) The editing apparatus as set forth in Claim 37, wherein:

in the file, the control procedure program is configured by combining the variable number data and the control data, where the variable number names of the variable number data are primary keys and the variable names of the control data are foreign keys, while a user screen is configured by combining the variable data and the screen data, where the variable number names of the variable number data are primary keys and the variable number names of the screen data are foreign keys.

39. (Original) The editing apparatus as set forth in Claim 37, wherein:

in the file, the variable number names are root segments while (a) the control data, (b) the screen data and (c) addresses of respective control-object apparatuses are subordinate segments being subordinate to the root segments, where the common data is composed of the addresses of the respective control-object apparatuses, and the variable number names.

40. (Original) The editing apparatus as set forth in Claim 37, wherein:

in the file, treated as encapsulated objects are (a) the inherent data of the control program, (b) the inherent data of the screen data, (c) the variable number names, and (d) the addresses of the respective control-object apparatuses composing the common data, where, in each of the objects, both the inherent data and the addresses are treated as data, and the variable number names are treated as procedures, the data being accessed via the variable number names.

41. (Original) The editing apparatus as set forth in Claim 37, wherein:

incidental information supplying means for supplying, from one of the editing means to the other of the editing means, the variable numbers, which are so set as to correspond to the

addresses of the respective control-object apparatuses, as incidental information regarding either of a plurality of the display symbols representing the control-object apparatuses and states thereof, or a plurality of the control symbols representing control operation corresponding to the control-object apparatuses.

42. (Original) The editing apparatus as set forth in Claim 41, wherein:

the incidental information supplying means supplies the incidental information in accordance with operation of selecting one of the display symbols and the control symbols that is displayed on an editing screen of one of the editing means, and copying the one of the display symbols and the control symbols, and

the incidental information supplying means causes the copied one of the display symbol and the control symbol to be automatically drawn together with the incidental information, by looking up the common data.

43. (Cancelled)

44. (Original) A computer-readable recording medium that stores an editing program, the editing program executing:

a first editing process for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

a second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a data generating process for causing one of the first and second editing processes to generate, in a single file, inherent data, which is inherent to one of the display content program

and the control procedure program, based on the variable name of the common data obtained by searching out of the single file, where the single file stores (1) screen data, which is inclusive of (a) inherent data inherent to the display content program, (b) variable names set with respect to the respective control-object apparatuses, (2) control data, which is inclusive of the variable names and inherent data inherent to the control procedure program, the common data including the variable names, and (3) common data, which is common to (a) the display content program, (b) the control procedure program, and which is inclusive of the variable names.

45. (Cancelled)

46. (Cancelled)

47. (Original) The recording medium as set forth in Claim 44, wherein:

the recording medium stores the editing program executing an incidental information supplying process for supplying, from one of the editing processes to the other of the editing processes, variable number names, which are so set as to correspond to addresses of the respective control-object apparatuses, where the variable numbers are supplied as incidental information regarding a plurality of display symbols for representing the control-object apparatuses and states thereof, or a plurality of control symbols for representing control operation that corresponds to the control-object apparatuses.

48. (Original) The recording medium as set forth in Claim 47, wherein:

the incidental information supplying process supplies the incidental information in accordance with operation of selecting an image block that is displayed on an editing screen of

one of the editing processes, and copying the image block, and

the incidental information supplying process causes the copied one of the display symbol and the control symbol to be automatically drawn together with the incidental information, by the one of the first and second editing processes, by looking up common data.

49. (Cancelled)

50. (Cancelled)

51. (Original) A computer-readable recording medium that stores an editing program, the editing program executing:

one of a first editing process and a second editing process, the first editing process for generating a display content program being for setting a content of display for displaying states of control-object apparatuses, and the second editing process being for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a data generating process for causing one of the first and second editing processes to generate, in a single file, inherent data, which is inherent to one of the display content program and the control procedure program, based on the variable name of the common data obtained by searching out of the single file, where the single file stores (1) screen data, which is inclusive of (a) inherent data inherent to the display content program, (b) variable names set with respect to the respective control-object apparatuses, (2) control data, which is inclusive of the variable names and inherent data inherent to the control procedure program, the common data including the variable names, and (3) common data, which is common to (a) the display content program, (b) the control procedure program, and which is inclusive of the variable names.

52. (Cancelled)

53. (Cancelled)

54. (Original) The recording medium as set forth in Claim 51, wherein:

the recording medium stores the editing program executing an incidental information supplying process for supplying, from one of the editing processes to the other of the editing processes, variable number names, which are so set as to correspond to addresses of the respective control-object apparatuses, where the variable numbers are supplied as incidental information regarding a plurality of display symbols for representing the control-object apparatuses and states thereof, or a plurality of control symbols for representing control operation that corresponds to the control-object apparatuses.

55. (Original) The recording medium as set forth in Claim 54, wherein:

the incidental information supplying process supplies the incidental information in accordance with operation of selecting an image block that is displayed on an editing screen of one of the editing processes, and copying the image block, and

the incidental information supplying process causes the copied one of the display symbol and the control symbol to be automatically drawn together with the incidental information, by the one of the first and second editing processes, by looking up common data.

56. (Cancelled)

57. (Cancelled)

58. (Original) An editing apparatus, comprising:

first editing means for generating a display content program for, setting a content of display for displaying states of control-object apparatuses;

second editing means for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses;

registering means for registering a variable number assigned to an address of the control-object apparatus in such a manner that the variable number is associated with functionally associated ones of image blocks provided respectively in the first and second editing means, so as to display the variable number on the first and second editing screens; and

display means for displaying the registered variable number, and for displaying, in accordance with operation of selecting the displayed variable number and indicating the selected variable number on one of the first and second editing screens, the image block associated with the variable number on the editing screen on which the variable number is indicated.

59. (Original) The editing apparatus as set forth in Claim 58, wherein the registering means carries out the association of the functionally associated image block and the variable number by giving functional attribute to the variable number.

60. (Original) The editing apparatus as set forth in Claim 59, wherein the display means displays the variable numbers together with the image blocks.

61. (Original) A recording medium that stores an editing program, the editing program executing:

a first editing process for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

a second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses;

a registering process for registering, corresponding to the control-object apparatuses, a variable number assigned to an address of the control-object apparatus in such a manner that the variable number is associated with functionally associated ones of image blocks provided respectively in the first and second editing processes, so as to display the variable number on the first and second editing screens; and

a display process for displaying the registered variable number, and for displaying, in accordance with operation of selecting the displayed variable number and indicating the selected variable number on one of the first and second editing screens, the image block associated with the variable number on the editing screen on which the variable number is indicated.

62. (Original) The recording medium as set forth in Claim 61, wherein the registering process carries out the association of the functionally associated image blocks and the variable number by giving functional attribute to the variable number.

63. (Original) The recording medium as set forth in Claim 62, wherein the display process displays the variable number together with the image block.

64. (Original) A recording medium that stores an editing program, the editing program executing:

one of a first editing process and a second editing process, the first editing process for generating a display content program being for setting a content of display for displaying states

of control-object apparatuses, and the second editing process being for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses;

a registering process for registering, corresponding to the control-object apparatuses, a variable number assigned to an address of the control-object apparatus in such a manner that the variable number is associated with functionally associated ones of image blocks provided respectively in the first and second editing processes, so as to display the variable number on the first and second editing screens; and

a display process for displaying the registered variable number, and for displaying, in accordance with operation of selecting the displayed variable number and indicating the selected variable number on one of the first and second editing screens, the image block associated with the variable number on the editing screen on which the variable number is indicated.

65. (Original) The recording medium as set forth in Claim 64, wherein the registering process carries out the association of the functionally associated image blocks and the variable number by giving functional attribute to the variable number.

66. (Original) The recording medium as set forth in Claim 65, wherein the display process displays the variable number together with the image block.

67. (Original) An editing apparatus, comprising:

first editing means for generating a display content program for setting a content of display for displaying states of control-object apparatuses, and for assigning an address to each function of an image block having a plurality of the functions, via variable numbers that

associate addresses and names of the control-object apparatuses;

second editing means for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

program generating means for generating, upon positioning the image block on the first editing screen by the first editing means, a partial program corresponding to the image block by registering variable numbers on a program list for storing commands that compose the control procedure program in accordance with order of execution, where the variable numbers are associated with each of the functions of the image block.

68. (Original) The editing apparatus as set forth in Claim 67, wherein the program generating means visualizes, on the second editing screen of the second editing means, a group of commands composing the partial program.

69. (Original) The editing apparatus as set forth in Claim 67, wherein the program generating means stores the generated partial program individually in a separate file.

70. (Original) The editing apparatus as set forth in Claim 69, wherein the program generating means registers, onto the program list, ladder commands corresponding to the variable numbers and addresses assigned to the variable numbers; so that the functions of the image block are realized when the partial program is generated.

71. (Original) A recording medium that stores an editing program, the editing program executing:

a first editing process for generating a display content program for setting a content of

display for displaying states of control-object apparatuses, and for assigning an address to each function of an image block having a plurality of the functions, via variable numbers that associate addresses and names of the control -object apparatuses;

a second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a program generating process for generating, upon positioning the image block on the first editing screen by the first editing process, a partial program corresponding to the image block by registering variable numbers on a program list for storing commands that compose the control procedure program in accordance with order of execution, where the variable numbers are associated with each of the functions of the image block.

72. (Original) The recording medium as set forth in Claim 71, wherein the program generating process visualizes, on the second editing screen of the second editing process,. a group of commands composing the partial program.

73. (Original) The recording medium as set forth in Claim 71, wherein the program generating process stores the generated partial program individually in a separate file.

74. (Original) The recording medium as set forth in Claim 73, wherein the program generating process registers, onto the program list, ladder commands corresponding to the variable numbers and addresses assigned to the variable numbers, so that the functions of the image block are realized when the partial program is; generated.

75. (Original) A recording medium that stores an editing program, the editing program executing:

one of a first editing process and a second editing process, where the first editing process for generating a display content program for setting a content of display for displaying states of control-object apparatuses, and for assigning an address to each function of an image block having a plurality of the functions, via variable numbers that associate addresses and names of the control-object apparatuses, and where the second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

a program generating process for generating, upon positioning the image block on the first editing screen by the first editing process, a partial program corresponding to the image block by registering variable number on a program list for storing commands that compose the control procedure program in accordance with order of execution, where the variable numbers are associated with each of the functions of the image block.

76. (Original) The recording medium as set forth in Claim 75, wherein the program generating process visualizes, on the second editing screen of the second editing process, a group of commands composing the partial program.

77. (Original) The recording medium as set forth in Claim 75, wherein the program generating process stores the generated partial program individually in a separate tie.

78. (Original) The recording medium as set forth in Claim 77, wherein the program

generating process registers, onto the program list, ladder commands corresponding to the variable numbers and addresses assigned to the variable numbers so that the functions of the image block are realized when the partial program is generated.

79. (Original) An editing apparatus, comprising:

first editing means for generating a display comment program for setting a content of display for displaying states of control-object apparatuses;

second editing means for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

extracting means for associating in advance commands for composing the control procedure program with an image block for composing the content display program, and for extracting, with respect to a plurality of the commands, the image block associated with the commands included in the control procedure program generated by the second editing means.

80. (Original) The editing apparatus as set forth in Claim 79, wherein the extracting means registers the extracted image block per one screen frame of the display content program.

81. (Original) The editing apparatus as set forth in Claim 80, wherein the extracting means extracts the image blocks collectively with respect to the separate control procedure program.

82. (Original) The editing apparatus as set forth in Claim 79, wherein the extracting means extracts attribute information regarding the commands together with the image block.

83. (Original) A recording medium that stores an editing program, the editing program executing:

a first editing process for generating a display content program for setting a content of display for displaying states of control-object apparatuses;

a second editing process for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

an extracting process for associating in advance commands for composing the control procedure program with an image block for composing the content display program, and for extracting, with respect to a plurality of the commands, the image block associated with the commands included in the control procedure program generated by the second editing process.

84. (Original) The recording medium as set forth in Claim 83, wherein the extracting process registers the extracted image block per one screen frame of the display content program.

85. (Original) The recording medium as set forth in Claim 84, wherein the extracting process extracts the image block collectively with respect to the single control procedure program.

86. (Original) The recording medium as set forth in Claim 83, wherein the extracting process extracts attribute information regarding the commands together with the image block.

87. (Original) A recording medium that stores an editing program, the editing program executing:

one of a first editing process and a second editing process, the first editing process for

generating a display content program being for setting a content of display for displaying states of control-object apparatuses, and the second editing process being for generating a control procedure program for setting a procedure of control for controlling the control-object apparatuses; and

an extracting process for associating in advance commands for composing the control procedure program with an image block for composing the content display program, and for extracting, with respect to a plurality of the commands, the image block associated with the commands.

88. (Original) The recording medium as set forth in Claim 87, wherein the extracting process registers the extracted e block per one screen of the display content program.

89. (Original) The recording medium as set forth in Claim 88, wherein the extracting process extracts the image block collectively with respect to the single control procedure program.

90. (Original) The recording medium as set forth in Claim 87, wherein the extracting process extracts attribute information regarding the commands together with the image block.